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10/560,188	02/20/2007	Jan Herman Laarhuis	242597	1493

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EXAMINER	
KAO, JUTAI	

ART UNIT	PAPER NUMBER
2473	

NOTIFICATION DATE	DELIVERY MODE
02/25/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/560,188	LAARHUIS ET AL.	
	Examiner	Art Unit	
	JUTAI KAO	2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23,27 and 28* is/are pending in the application.

4a) Of the above claim(s) *16-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,27 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Amendments filed on 10/22/2009 change the scopes of previously filed claims. Arguments/amendments filed on 10/22/2009 overcome all claim rejections presented in the previous office actions. New grounds of rejections are presented in the current office action as necessitated by the amendments, and the current office action is made FINAL.

Response to Arguments

1. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 14 recites the limitation "the combined nodes" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-2, 5, 7, 9and 12-15 rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (US 6,959,019) in view of Mueller (US 7,068,687).

Roberts discloses a method of aharmonic interleaving of forward error corrected signals including the following features.

Regarding claim 1, a telecommunication network (see network shown in Fig. 1), comprising: a first subnetwork (see network on the 4a side of Fig. 1); a plurality of physically separate intersubnetwork connections for connection of the first subnetwork to a second subnetwork (see intersubnetwork connections 34a-34d in Fig. 3), each one of the plurality of intersubnetwork connections having a first subnetwork side (see 34 a-d in Fig.3) and second subnetwork side (see intersubnetwork connections 38a-d in Fig.

4); a plurality of inverse multiplexers (see inverse multiplexers 22a-22d in Fig. 3), wherein each one of the plurality of inverse multiplexer has an input (see inputs 10a-10d), each one of the plurality of inverse multiplexers being arranged for receiving an original data signal transmitted from the respective node to the second subnetwork and inverse multiplexing the original data signal to a plurality of inverse multiplex data signals for transmitting the original data signal via the plurality of intersubnetwork connections in an inverse-multiplexed manner (see original signal SS(1) through SS(4) being input to the inverse multiplexers 22a-22d, and each original signal is inverse multiplexed and transmitted to the second network via the intersubnetwork connections 34a-34d); a plurality of system multiplexers (see system multiplexers 30a-30d), each one of the plurality of system multiplexers being connected between outputs of a plurality of the inverse multiplexers and at least one of the plurality of intersubnetwork connections (see 30a-30d being placed between outputs of inverse mux 22a-22d and intersubnetwork connections 34a-34d), wherein each one of the plurality of system multiplexers is connected with a different one of the plurality of intersubnetwork connections (see each mux 30a-30d has its own intersubnetwork 34a-34d, respectively), and the plurality of system multiplexers are arranged for transmitting the inverse multiplex data signals to the second subnetwork (see Fig. 3 and 4, wherein the intersubnetwork connections are to be transmitted to the second subnetwork shown in Fig. 4), wherein the plurality of inverse multiplex data signals from a same one of the plurality of inverse multiplexers are each transmitted over a different one of the plurality of intersubnetwork connections (see Fig. 3, wherein each output of inverse mux 22a-

22d are transmitted to a different intersubnetwork connection 34a-34d via different mux 30a-30d); wherein each one of the plurality of system multiplexers is arranged to receive and transmit inverse multiplex data signals from each of the plurality of inverse multiplexers (see Fig. 3, wherein mux 30a-30d are arranged to receive and transmit inverse multiplex data signals from inverse mux 22a-22d).

Regarding claim 2, a telecommunication network (see network shown in Fig. 1), comprising: a first subnetwork (see network on the 4b side of Fig. 1); a plurality of physically separate intersubnetwork connections for connection of the first subnetwork with a second subnetwork (see intersubnetwork connections 38a-38d in Fig. 4), each one of the plurality of intersubnetwork connections having a first subnetwork side (see intersubnetwork connections 38a-d in Fig. 4) and second subnetwork side (see 34 a-d in Fig.3); a plurality of inverse demultiplexers (see mux 44a-44d in Fig. 4), each one of the plurality of inverse demultiplexers being arranged for receiving a plurality of inverse multiplex data signals (see data signals 46 in Fig. 4), recovering an original signal transmitted from the second subnetwork from the plurality of inverse multiplex signals (see RS(1)-RS(4) being recovered from the inverse multiplex signals 46 in Fig. 4) and presenting the recovered original signal to the respective node of the receiving one of the plurality of inverse demultiplexers (see Fig. 4, wherein the recovered signals are presented via outputs 16a-16d); a plurality of system demultiplexers (see dmux 40a-40d in Fig. 4), each one of the plurality of system demultiplexers being connected between an input of each of the plurality of inverse demultiplexers (see connections 42 with mux 44a-44d in Fig. 4) and at least one of the intersubnetwork connections (see connections

38a-38d in Fig. 4), wherein each one of the plurality of system demultiplexers is connected with a different one of the plurality of physically separate intersubnetwork connections (see Fig. 4, wherein each dmux 40a-40d is connected with a intersubnetwork connection 38a-38d, respectively), and the plurality of system demultiplexers are arranged for receiving the plurality of inverse multiplex data signals from the second subnetwork (see Fig. 4, wherein each mux 40a-40d receives signal from the subnetwork shown in Fig. 3), wherein each one of the plurality of inverse multiplex data signals for a same one of the plurality of inverse demultiplexers are each received over a different one of the plurality of intersubnetwork connections (see Fig. 4, each mux 44a-44d receives data carried by different intersubnetwork connections 38a-38d via the different dmux 40a-40d); wherein each one of the plurality of system demultiplexers has a plurality of connections to transmit inverse multiplex data signals to each one of the plurality of inverse demultiplexers (see each dmux 40a-40d has a plurality of connections 42 to transmit signals to each one of the mux 44a-44d).

Regarding claim 5, routing units which each comprises a combination of one of the inverse multiplexers and one of the system multiplexers (see Fig. 2, which shows a routing unit 8 including inverse multiplexers 22a-m and system multiplexer 26), wherein each routing unit, for interchanging the inverse multiplex data signals with the node (see Fig. 2, which includes nodes connected to routing unit 8 via lines 10a-m; the nodes are not shown in the figure, but as shown in Mueller, these nodes are represented by Rout1 and the routing unit is shown as the DMUX in Mueller), is, without intervention of one of the other routing units (see Fig. 1, wherein the nodes are connected to the routing unit 8

without intervention of any other routing unit), connected with a respective node (see Fig. 1, wherein routing unit 8 is connected with nodes 10a-m without intervention of other routing units), and via at least one of the routing units with other nodes than the respective node (see Fig. 1, wherein routing unit 8 is connected to nodes 16a-m via another routing unit 14).

Regarding claim 7, wherein at least one of the at least two intersubnetwork connections is a broadband connection (see "2.5 Gb/s" recited in column2, lines 1-4, which is considered broadband).

Regarding claim 9, wherein the number of intersubnetwork connection is smaller than the number of nodes connectable with the connecting system in the fist subnetwork (see Fig. 1, wherein m possible connectable nodes are uses one intersubnetwork connection, represented by connection 12; that is, using the multiplexers 8 in place of the DMUX of Mueller and replacing the IMAs of Mueller using intersubnetwork connection 12 of Roberts).

Regarding claim 14, wherein the second subnetwork (see subnetwork shown in Fig. 4) comprises a shared inverse demultiplexer and/or inverse multiplexer for inverse demultiplexing and/or inverse multiplexing original data from and/or for the combined nodes (see the mux/demux shown in Fig. 4).

Regarding claim 15, wherein the second subnetwork (see subnetwork shown in Fig. 4) comprises a plurality of inverse demultiplexers and/or inverse multiplexers, each for inverse demultiplexing and/or inverse multiplexing of original data from and/or for a respective node from the first subnetwork (see the mux/demux shown in Fig. 4).

Roberts does not explicitly disclose the following features: regarding claim 1, wherein the network comprises: a plurality of nodes in the first subnetwork; and wherein each one of the plurality of inverse multiplexers has an input connected with a respective node of the plurality of nodes; regarding claim 2, wherein the network comprises: a plurality of nodes in the first subnetwork; and wherein each one of the plurality of inverse demultiplexers has an output connected with a respective node of the plurality of nodes; regarding claim 11, wherein at least one of the inverse multiplexers is arranged for distributing the inverse multiplex data signals over the intersubnetwork connections connected with the inverse multiplexer according to a predetermined distribution criterion; regarding claim 12, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the subnetwork connections in proportion with the bandwidth of the respective intersubnetwork connection; regarding claim 13, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the intersubnetwork connections in proportion with the number of intersubnetwork connections.

Mueller discloses a method for transmitting concatenated data signals including the following features.

Regarding claim 1, wherein the network comprises: a plurality of nodes in the first subnetwork (see plurality of ROUT1 in Fig. 1, shown by the dots, as shown by the dots on the left side of the figure); and wherein each one of the plurality of inverse multiplexers has an input connected with a respective node of the plurality of nodes

(see Fig. 1, wherein each of the plurality of DMUX are connected with a ROUT 1, as shown by the dots on the left side of the figure).

Regarding claim 2, wherein the network comprises: a plurality of nodes in the first subnetwork (see plurality of ROUT2 in Fig. 1, shown by the dots, as shown by the dots on the left side of the figure); and wherein each one of the plurality of inverse demultiplexers has an output connected with a respective node of the plurality of nodes (see Fig. 1, wherein each of the output of the plurality of MUX are connected with a ROUT 2, as shown by the dots on the left side of the figure).

Regarding claim 11, wherein at least one of the inverse multiplexers is arranged for distributing the inverse multiplex data signals over the intersubnetwork connections connected with the inverse multiplexer according to a predetermined distribution criterion (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

Regarding claim 12, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the subnetwork connections in proportion with the bandwidth of the respective intersubnetwork connection (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

Regarding claim 13, wherein the inverse multiplexer is arranged for transmitting an amount of inverse multiplex data signals over each of the intersubnetwork connections in proportion with the number of intersubnetwork connections (see Fig. 1, wherein a 40Gbit/s signal DSA is distributed into four 10 Gbit/s IMA signals).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Roberts using features, as taught by Mueller, in order to allow transmission of concatenated data signals generated from a plurality of nodes (see abstract of Mueller).

8. Claims 3-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts and Mueller as applied to claim 1 above, and further in view of Ferguson (US 2002/0041604).

Roberts and Mueller disclose the claimed limitations as shown above.

Roberts and Mueller do not disclose the following features: regarding claim 3, wherein the intersubnetwork connections comprise different local loop telephone connections; regarding claim 4, wherein at least two nodes on the first subnetwork side are located in different buildings; regarding claim 8, wherein at least one of the broadband connection has a data throughput speed between 0.5 and 2.0 Mbps in the direction from the second subnetwork to the first subnetwork.

Ferguson discloses an SDH multiplexer with AIM facilities including the following features.

Regarding claim 3, wherein the intersubnetwork connections comprise different local loop telephone connections (see Fig. 1, which shows the intersubnetwork connections, or the AIM shown in Fig. 5, which are used by "linking…sub-networks…by one telephone company to another" recited in paragraph [0004]).

Regarding claim 4, wherein at least two nodes on the first subnetwork side are located in different buildings (as shown in Fig. 3, the sub-networks is a telephone sub-network, which is known to have user nodes to be located in different buildings/locations in a neighborhood).

Regarding claim 8, wherein at least one of the broadband connection has a data throughput speed between 0.5 and 2.0 Mbps in the direction from the second subnetwork to the first subnetwork (see "1.5 or 2Mbit/s" recited in paragraph [0003]).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Roberts and Mueller, using features as taught by Ferguson, in order to allow telephone providers to connect its sub-network to one another.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller and Roberts as applied to claim 5 above, and further in view of Okumura (US 2006/0007950).

Mueller and Roberts disclose the claimed limitations as shown above.

Roberts also discloses the following features.

Regarding claim 6, wherein at least one of the routing units is connected via a regular connection with its respective node (see Fig. 1, wherein the routing unit 8 is connected to its respective nodes via regular connections 10a-m).

Mueller and Roberts do not disclose the following features: regarding claim 6, wherein the routing unit is connected via a wireless transmission connection for

communication with at least one of the other routing units for interchanging the inverse multiplex data signals with the other nodes than the respective node.

Okumura discloses a data multiplexing method including the following features.

Regarding claim 6, wherein the routing unit is connected via a wireless transmission connection for communication with at least one of the other routing units for interchanging the inverse multiplex data signals with the other nodes than the respective node (see Fig. 15, wherein the routing unit 15 is connected to another routing unit 23 via wireless transmission connection connected via antenna 17, 18, 21 and/or 29).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mueller and Roberts, using features as taught by Okumura, in order to the communication of wireless subnetworks.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts and Mueller as applied to claim 1 above, and further in view of Kubo (US 7,440,475).

Roberts and Mueller disclose the claimed limitations as shown above.

Roberts and Mueller do not disclose the following features: regarding claim 10, wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connection.

Kubo discloses an error-correction multiplexing apparatus including the following features.

Regarding claim 10, wherein the number of intersubnetwork connections is equal to the number of end nodes in the first subnetwork connectable with the second subnetwork via the intersubnetwork connection (see Fig. 1 and Fig. 2, wherein one STM -64 connection is connected to the multiplexer/demultiplexer unit and only one intersubnetwork connection, shown as the FEC FRAME in Fig. 2 is output from the FEC multiplexer device).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Roberts and Mueller, using features as taught by Kubo, in order to correct transmission errors.

11. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts and Mueller as applied to claims 2 and 7 above, and further in view of O'Dell (US 6,891,825).

Roberts and Mueller disclose the claimed limitations as shown above.

Roberts and Mueller do not disclose the following features: regarding claim 27, wherein each one of the plurality of intersubnetwork connections comprises a different local loop telephone connection; regarding claim 28, wherein at least one of the at least two intersubnetwork connections is an ADSL connection.

O'Dell discloses a system for providing multi-user access to a packet switched network including the following features.

Regarding claim 27, wherein each one of the plurality of intersubnetwork connections comprises a different local loop telephone connection (see Fig. 6A, wherein

the intersubnetwork connections, between the Internet 623 and the LAN shown on the left side of the figure, may be connected via local loop telephone connections of the PSTN 631).

Regarding claim 28, wherein at least one of the at least two intersubnetwork connections is an ADSL connection (see Fig. 6A, wherein the intersubnetwork connections, between the Internet 623 and the LAN shown on the left side of the figure, may be connected via the DSLAM 614 and the data network 615).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Roberts and Mueller, using features as taught by O'Dell, in order to provide multi-user access to a packet switched network (see abstract of O'Dell).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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